Amendments to the Specification:

Please replace the paragraph beginning at page 10, line 14 with the following amended paragraph:

It should be noted that the waveguide-type optical wavelength conversion element 2 is constituted by, for example, an optical waveguide and a periodic-shaped polarization reversal structure formed within the optical waveguide. Light transmitted by the optical waveguide is wavelength-converted by a non-linear grating constituted by the periodic-shaped polarization reversal structure to generate a higher harmonic wave. The generated higher harmonic wave has a wavelength of 1/2 or 1/3 the wavelength of the incident light (fundamental wave). A structure in which Mg-doped lithium niobate is used is a typical example of the waveguide-type optical wavelength conversion element 2. The periodic-shaped polarization reversal structure is formed as a single crystal of Mg-doped lithium niobate. In this case, when there is a cycle of approximately 2.8 μm, the fundamental wave of a 820 nm wavelength can be converted into a higher harmonic wave of a ~~420~~ <u>410</u> nm wavelength.

Please replace the paragraph beginning at page 14, line 6 with the following amended paragraph:

In contrast to this, with the optical information processing device of Embodiment 1 shown in FIG. 1, it is possible to emit the fundamental wave 7 and the higher harmonic wave 8 of different wavelengths from the same point of emission by providing the wave-guiding <u>optical</u> wavelength conversion element 2. Accordingly, this should be configured such that light of two different wavelengths emitted from the same point of light source is focused on the same point. Furthermore, the condensing lens 5 easily can focus the different wavelengths of the fundamental wave 7 and the higher harmonic wave 8 on the same point by carrying out color correction.

Furthermore, being configured as a confocal optical system, an effect is demonstrated in which a stable optical system can be easily configured even with regard to disturbances such as wavelength fluctuation of the optical system and point of emission positioning displacement.

Please replace the paragraph beginning at page 17, line 10 with the following amended paragraph:

Furthermore, as shown in FIG. 5, instead of a multilayer structured recording medium, it is also possible to use a single-layer structured recording medium in which recording is carried out in the directions of the surface and the depth (thickness) of the recording medium by way of volumetric recording. FIG. 5 is a side view showing a structure of yet another optical information processing device according to Embodiment 1. A point of difference between the optical information processing device shown in FIG. 5 and the optical information processing device shown in FIG. 1 is that instead of the multilayer structured recording medium 6 (FIG. 1), a single-layer structured recording medium 16 (FIG. 5) is used. Other than that, the structures of FIG. 1 and FIG. 5 are the same. FIGS. 6A and 6B use the horizontal axis to indicate positioning within the surface of the ring-shaped band aperture filter 4a and show the transmittance of the penetrating light on the vertical axis. FIG. 6A is equivalent to FIG. 2A, and FIG. 6B is equivalent to FIG. ~~2A~~ 2B.

Please replace the paragraph beginning at page 19, line 4 with the following amended paragraph:

The fundamental wave 7 and the higher harmonic wave 8 are emitted from the same wave-guiding optical wavelength conversion element 2, but since their wavelengths are greatly different, the confinement within their optical waveguides are different. For this reason, the

angles of divergence from the optical waveguides are greatly different, with the angle of divergence of the fundamental wave 7 being larger than the angle of divergence of the higher harmonic wave 8. Accordingly, when the emitted light from the optical wavelength conversion element 2 is collimated by the collimator lens 3, the surface area of the fundamental wave 7 is considerably larger than that of the higher harmonic wave 8, and the focusing characteristics of the fundamental wave 7 and the higher harmonic wave 8 are likely to be different.

Please replace the paragraph beginning at page 20, line 11 with the following amended paragraph:

A high-output pulse light can be obtained by pulse driving the DBR semiconductor laser 1 that outputs the fundamental wave. For example, a pulse width less than 20 to 30 picoseconds can be produced by using a semiconductor laser that has a supersaturated absorber. The pulse width can be reduced further by wavelength-converting this using a non-linear optical effect. Furthermore, high-output laser output with a lead value of several 100 mW is possible by pulse-driving the DBR semiconductor laser 1, and high-efficiency SHG (second harmonic generation) output can be obtained by wavelength-converting this using the <u>optical</u> wavelength conversion element 2. In this way, the fundamental wave 7 and the higher harmonic wave 8 emitted from the <u>optical</u> wavelength conversion element 2 are focused on the focal point 9, which is the same point in recording medium 26, and the power density of the fundamental wave 7 and the higher harmonic wave 8 is increased at the focal point 9. From this, two-photon absorption is produced using a non-linear optical effect.